



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,565	03/11/2004	David M. Roggeman	P00091US1B	7785
7590 01/04/2008 Chief IP Counsel Bridgestone Americas Holding, Inc. 1200 Firestone Parkway Akron, OH 44317			EXAMINER MERKLING, MATTHEW J	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 01/04/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/799,565	Applicant(s) ROGGEMAN ET AL.	
	Examiner Matthew J. Merkling	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/30/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 10/30/07. These drawings are acceptable.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 27 and 28 recite the limitation "the source" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 17, 18, 20, 21, 26-29, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Okada (JP 05-171164).

Regarding claim 17, Okada discloses an apparatus for humidifying a hydrocarbon stream (paragraph 8) comprising:

a vessel (Drawing 1, (4)) which defines an interior cavity and having an inlet (2) adjacent a lower end of the cavity for receiving a hydrocarbon stream (paragraph 15);

a bed of a packing material (8) in the cavity; and

water filling at least a portion of the bed (paragraph 15); and

a disengagement zone (area above spray nozzle, 9).

Regarding limitations recited in claim 1 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.

Regarding claim 18, Okada further discloses a second inlet (11) in the vessel for adding water to the vessel (paragraph 15).

Regarding claim 20, Okada further discloses:

a mixer (6) for mixing the humidified hydrocarbon stream with an unhumidified hydrocarbon stream to form a combined stream (paragraph 15, Drawing 1); and

a sensor (7) for detecting a moisture content of at least one of the unhumidified hydrocarbon stream and the combined stream (paragraph 15).

Regarding claim 21, Okada further discloses an outlet through which the humidified hydrocarbon stream exits the vessel (see Drawing 1).

Regarding claim 26, Okada further discloses a source of the hydrocarbon stream fluidly connected with the inlet (see Drawing 1).

Regarding claim 27 and 28, the composition of the fluid entering the vessel does not add any structure to the claimed apparatus (see MPEP 2115), and therefore the claim continues to read on the device of Okada.

Regarding claim 29, Okada illustrates a head space in the vessel above the bed and the water to allow liquid water to separate from the gas stream (see Drawing 1).

Regarding claim 34, Okada, as discussed in claim 17 above, further discloses a second vessel (6, see Drawing 1) "coupled" to the inlet (via conduit 3).

Regarding limitations recited in claim 34 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

6. Claims 31, 36 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Holst et al. (US 5,650,128).

Regarding claims 31 and 36, Holst discloses an apparatus comprising:

a vessel (12) which defines an interior cavity and having an inlet (20 or 30) adjacent a lower end of the cavity (see Fig. 1) and an outlet (28) adjacent an upper end of the cavity (see Fig. 1);

a bed of a packing material (14) in the cavity, the packing material comprising particles which are larger in size toward an upper end of the bed (see Fig. 1 and col. 9 lines 57-61);

and a head space (above packed bed 14, and below outlet 28, see Fig. 1) which spaces the outlet from the packing material; and

a disengagement zone (above packed bed 14, and below outlet 28, see Fig. 1).

Regarding limitations recited in claims 31, 36 and 40 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) as applied to claim 17 above, and further in view of Smith, Jr. (US 5,446,223).

Regarding claim 19, Okada, as discussed in claim 17 above, discloses all of the claim limitations, but fails to teach a return line for returning a portion of a hydrocarbon stream which has been humidified to the cavity.

Smith also discloses an apparatus for the processing and subsequent measuring of a process variable.

Smith teaches a return line from the effluent line to the processing vessel (alkylation reactor) in order to reprocess the stream and control the olefin content of the effluent stream below a certain limit (col. 8 lines 59-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the return line structure of Smith in the humidification apparatus of Okada in order to control the humidification content of the effluent stream.

Art Unit: 1795

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) as applied to claim 17 above, and further in view of Yoneda et al. (US 5,123,836).

Regarding claim 25, Okada, as discussed in claim 17 above, discloses all of the claim limitations, but fails to teach the packing material comprising porcelain.

Yoneda also discloses an apparatus for gas/liquid contact.

Yoneda teaches the use of porcelain as a packed bed in order to efficiently conduct gas-liquid contact (col. 16 lines 49-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the porcelain packing material of Yoneda in the humidifying apparatus of Okada in order to efficiently conduct gas-liquid contact.

10. Claims 22-24, 31 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) in view of Holst et al. (US 5,650,128).

Regarding claims 22 and 23, Okada, as discussed in claim 17 above, discloses all of the claim limitations, but fails to teach the packing material is in the form of particles that are smaller adjacent a bottom of the bed than adjacent a top of the bed.

Holst also discloses a device for contacting a fluid stream with packing material.

Holst teaches particles on the bottom of the bed having a smaller diameter than particles on the top of the bed (see Fig. 1) in order to thoroughly mix the

two components prior to reaching the larger particles and to allow the processing rate to be turned up or down without regard to fluid mechanics (col. 9 lines 57-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the smaller particles below the larger particles; as in Holst, in the packing bed of Okada in order to thoroughly mix the two components prior to reaching the larger particles and to allow the processing rate to be turned up or down without regard to fluid mechanics.

Regarding claim 24, it was well known in the art at the time of the invention that the size of the particles in the packing material has significant effect on the fluid distribution and mixing of the fluids in the vessel (Holst col. 12 lines 8-24), the size of the particles is not considered to confer patentability to the claim, as the size of the particles is a variable that can be modified, as is taught by Holst, to alter the flow distribution and mixing, the size of the particles would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed size of the particles cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the size of the particles in the modified Okada to obtain the desired mixing and flow distribution (In re Boesch, 617 F. 2d. 272,205 USPQ 215 (CCPA 1980)). Since it has been held that where general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (In re Aller, 105 USPQ 223).

Art Unit: 1795

Regarding claim 31, Okada discloses a humidification apparatus comprising:

a vessel (4) which defines an interior cavity and having an inlet (2) adjacent a lower end of the cavity and an outlet adjacent an upper end of the cavity (see Drawing 1);

a bed of a packing material (8) in the cavity, the packing material comprising particles which are larger in size toward an upper end of the bed;

water filling a portion of the bed (paragraph 15); and

a head space (see Drawing 1) which spaces the outlet from the water and the packing material; and

a disengagement zone (area above spray nozzle, 9).

Okada fails to teach the packing material comprising particles which are larger in size toward an upper end of the bed.

Holst also discloses a device for contacting a fluid stream with packing material.

Holst teaches particles on the bottom of the bed having a smaller diameter than particles on the top of the bed (see Fig. 1) in order to thoroughly mix the two components prior to reaching the larger particles and to allow the processing rate to be turned up or down without regard to fluid mechanics (col. 9 lines 57-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the smaller particles below the larger particles, as in Holst, in the packing bed of Okada in order to thoroughly mix the two components prior to

Art Unit: 1795

reaching the larger particles and to allow the processing rate to be turned up or down without regard to fluid mechanics.

Regarding claim 32, Okada, as discussed in claim 31 above, further discloses a liquid level gauge for adjusting the height of the water (paragraph 15).

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) as applied to claim 17 above, and further in view of Niwa et al. (4,705,654).

Regarding claim 30, Okada, as discussed in claim 17 above, discloses all of the claim limitations, but fails to teach the particles are spherical.

Niwa also discloses an apparatus for humidification of a stream.

Niwa teaches spherical material (e.g. balls) are effecting packing material for a humidifying device (col. 5 lines 66-68).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the spherical packing material of Niwa with the humidification apparatus of Okada to utilize the effectiveness of spheres in humidification devices.

12. Claims 33, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) in view of Goode et al. (US 6,111,034).

Regarding claims 33, 38 and 39, Okada discloses an apparatus for humidifying a hydrocarbon stream comprising:

Art Unit: 1795

a vessel (4) which defines an interior cavity, the vessel comprising a first inlet (2) adjacent a lower end of the cavity for receiving a hydrocarbon stream, a second inlet (11) for adding water to the vessel, and an outlet (see Drawing 1);

a bed (8) in the cavity, the bed comprising a packing material (paragraph 15) and water which fills a portion of the bed (paragraph 15); and

a head space (disengagement zone) in the cavity (see Drawing 1) above the bed which allows liquid water to fall out of the hydrocarbon stream.

Regarding limitations recited in claims 33, 38 and 39 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.

13. Claims 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) as applied to claim 17 above, and further in view of Goode et al. (US 6,111,034).

Regarding claim 35, Okada, as discussed in claim 17 above teaches a method of selectively humidifying a hydrocarbon by contacting the hydrocarbon with water in a vessel and subsequently disengaging (demisting) the free water from the humidified hydrocarbon, but does not teach the end use of said humidified hydrocarbon in a polymerization reactor.

Goode also discloses a process that requires the humidification of a hydrocarbon (monomer).

Goode teaches a polymerization process that requires the introduction of a controlled amount of water to a hydrocarbon (see col. 8 lines 51-55) by contacting the hydrocarbon with water in a vessel and subsequently demisting it prior to introduction into the polymerization reactor (see col. 8 lines 51-66) as a preferable way of introducing controlled amounts of humidity into a monomer.

As such, it would have been obvious to one of ordinary skill in the art to change the end use of the humidified hydrocarbon of Okada, and direct the humidified hydrocarbon to a polymerization reactor, as taught by Goode, as a preferable way of introducing controlled amounts of humidity into a hydrocarbon.

14. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) and Holst et al. (US 5,650,128) as applied to claim 31 above, and further in view of Goode et al. (US 6,111,034).

Regarding claim 37, modified Okada, as discussed in claim 31 above teaches a method of selectively humidifying a hydrocarbon by contacting the

Art Unit: 1795

hydrocarbon with water in a vessel and subsequently disengaging (demisting) the free water from the humidified hydrocarbon, but does not teach the end use of said humidified hydrocarbon in a polymerization reactor.

Goode also discloses a process that requires the humidification of a hydrocarbon (monomer).

Goode teaches a polymerization process that requires the introduction of a controlled amount of water to a hydrocarbon (see col. 8 lines 51-55) by contacting the hydrocarbon with water in a vessel and subsequently demisting it prior to introduction into the polymerization reactor (see col. 8 lines 51-66) as a preferable way of introducing controlled amounts of humidity into a monomer.

As such, it would have been obvious to one of ordinary skill in the art to change the end use of the humidified hydrocarbon of Okada, and direct the humidified hydrocarbon to a polymerization reactor, as taught by Goode, as a preferable way of introducing controlled amounts of humidity into a hydrocarbon.

15. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada (JP 05-171164) as applied to claim 21 above, and further in view of Goode et al. (US 6,111,034) and Birks et al. (US 4,847,207).

Regarding claims 41 and 42, Okada, as discussed in claim 21 above, teaches a method of selectively humidifying a hydrocarbon by contacting the hydrocarbon with water in a vessel and subsequently disengaging (demisting)

the free water from the humidified hydrocarbon, but does not teach the end use of said humidified hydrocarbon in a polymerization reactor.

Goode also discloses a process that requires the humidification of a hydrocarbon (monomer).

Goode teaches a polymerization process that requires the introduction of a controlled amount of water to a hydrocarbon (see col. 8 lines 51-55) by contacting the hydrocarbon with water in a vessel and subsequently demisting it prior to introduction into the polymerization reactor (see col. 8 lines 51-66) as a preferable way of introducing controlled amounts of humidity into a monomer.

As such, it would have been obvious to one of ordinary skill in the art to change the end use of the humidified hydrocarbon of Okada, and direct the humidified hydrocarbon to a polymerization reactor, as taught by Goode, as a preferable way of introducing controlled amounts of humidity into a hydrocarbon.

Okada teaches an analyzer (7) located on the outlet line, but fails to teach an analyzer with a heater and a three-way valve coupled to the outlet.

Birks also discloses an analyzer utilized in a chemical process.

Birks teaches a sampling chamber (51), a three way valve (73), and a heater (78) in a process line (74) of a chemical reactor as a preferable and very well known way of using an online analyzer (chromatograph) to provide continuous analysis of reactor products (and all of which are normal to the art of chromatography, see col. 4 lines 25-28).

Art Unit: 1795

As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the chromatograph, heater and three-way valve of Birks, to the humidification apparatus of modified Okada, in order to provide a continuous method of analyzing the effluent of the humidification vessel.

Response to Arguments

Oath/declaration

16. The Applicant's arguments with regard to the examiner's request for a new oath or declaration is persuasive and the request is hereby withdrawn.

Drawings

17. The objections to the Drawings have been withdrawn in light of the amendments.

Arguments

18. Applicant's arguments filed 10/30/07 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a polymerization reactor, specifically in claims 17 and 31) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MJM



ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER